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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO. 040679/0439

#4
E. Hillis
10-3-97

In re Patent Application of

Haruhiko MURATA et al.

Serial No. 08/825,400

Group Art Unit:

Filed: March 28, 1997

Examiner:

For: IMPROVEMENT IN OR RELATING TO CIRCUIT BOARD
HAVING SOLDER BUMPS

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR 1.56

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Submitted herewith on Form PTO-1449 is a listing of document known to Applicant in order to comply with Applicant's duty of disclosure pursuant to 37 CFR 1.56. A copy of each listed document is being submitted to comply with the provisions of 37 CFR 1.97 and 1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicant does not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a prima facie prior art reference against the claims of the present application.



CONCISE EXPLANATION OF
RELEVANCE OF EACH DOCUMENT

Document A1 discloses, in Fig. 2(a) and 2(b) electrodes (3, 33) of a printed pattern (2) which differ in height, i.e., the height of the electrode (33) is 15 μm and the height of the electrode (3) is 29 μm . Such a difference in height of the electrodes makes it impossible to obtain a complete conduction between the pattern and a matching IC chip. In this patent, it is disclosed to subject a printed pattern (2) to a pre-heat treatment, i.e., a heat treatment at such a temperature for making the organic solutions in the pattern escape or volatilize therefrom but not making the conductive paste become completely solidified. Then, the pattern having been heat treated as above is subjected to pressing, e.g., a press treatment using a roll press of a surface pressure of 20 kg/cm^2 . Finally, the pattern is subjected to heat treatment and is solidified completely. Fig. 2(b) shows the electrode pattern after pressing, and the height of the electrode (33) became 20 μm . The electrodes processed by a press treatment effect a good conduction when joined to bumps (6) of an IC chip (5) and the yielding rate with respect to the conduction at their joining portions was 100%.

An English translation of the Japanese document is not readily available; however, an English language abstract is provided herewith. The absence of such translation does not relieve the PTO from its duty to consider the submitted document (37 CFR §1.98 and MPEP §609).

The listed document is being submitted in compliance with 37 C.F.R. §1.97(b), within three (3) months of the filing date.

Serial No. 08/825,400

Applicants respectfully requests that the listed document be considered by the Examiner and formally be made of record in the present application and that an initialled copy of Form PTO-1449 be returned in accordance with MPEP §609.

Respectfully submitted,

June 26, 1997

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